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## THE ELEMENTARY SCHOOL TEACHER

SEPTEMBER, 1909

## QUALITATIVE ELIMINATION FROM SCHOOL

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It is considered that one good way to test the efficiency of a school system is to determine what proportion of the pupils who enter school in the early years are finally graduated. Those schools in which a large proportion of pupils remain for eight or twelve years of study are on this basis considered to be superior schools, and those which have a very large percentage of elimination throughout the succeeding grades are similarly judged to be more or less inefficient. A somewhat better criterion than the mere number of graduates would evidently be a determination of what sort of pupils finish school. Whether, or in what proportion, those who might benefit most by school instruction are the ones who actually get it, is a question that school authorities ought undoubtedly to be able to answer. The facts in regard to the first question are known with a fair degree of accuracy in the case of a very few cities in the country. It has, indeed, only recently been recognized that such information in regard to the output of a school system had any particular significance. This is in itself a commentary on the backwardness of educational investigation. The second question has hardly been raised. There is doubtless plenty of opinion on the subject, but it is probably not more accurate than the opinion held a few years ago that practically all pupils in our best city schools finished at least the grammar grades; whereas it is now recog-

nized through recent investigation that certainly not over one-half of them do so.

Similarly, it is probably the current opinion that those who drop out of school are on the whole decidedly inferior students.

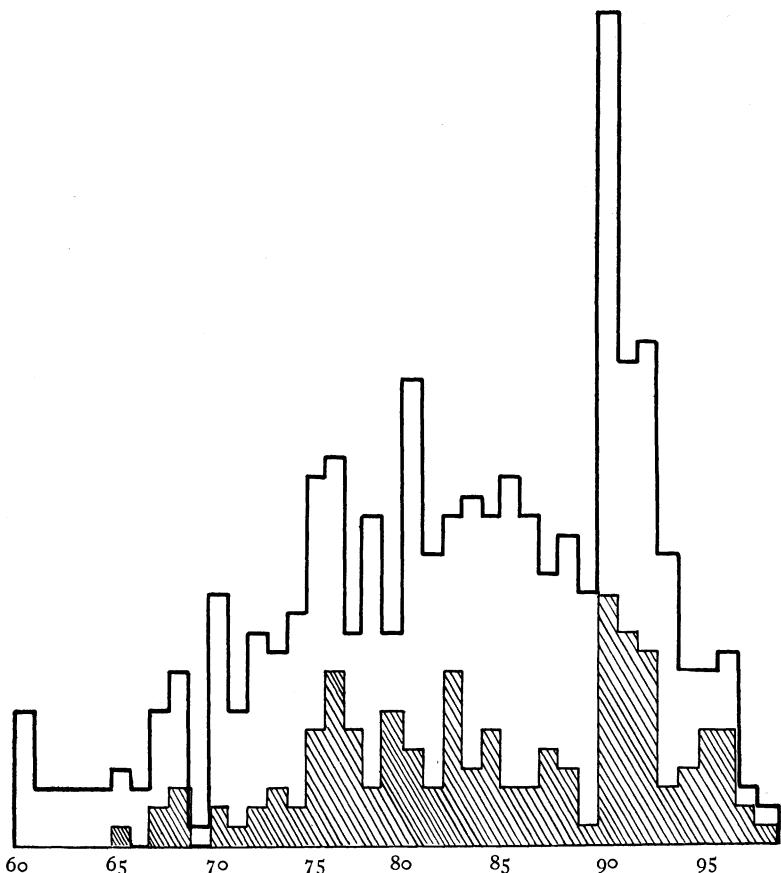


CHART IA.—Standings (or marks) of 486 pupils in the English classes of Grades 3-8 inclusive of City I. Median for total groups = 82 per cent. Those in shaded columns entered high school, 146 in number, 91 above and 55 below median.

Whether this is actually so, is a question that is worth answering from merely economic, if not from more general considerations. The object of the present study is largely to call attention to the problem and suggest some satisfactory methods for its investi-

gation. The question may be studied to greatest advantage in smaller cities where there is sufficient acquaintance on the part of the teachers with the causes which take pupils out of school to enable them to follow up the cases; to know, for instance, that leaving school is not merely a transfer to some other public or private school. The problem is of sufficient financial importance alone to the city concerned to make it one that a superintendent

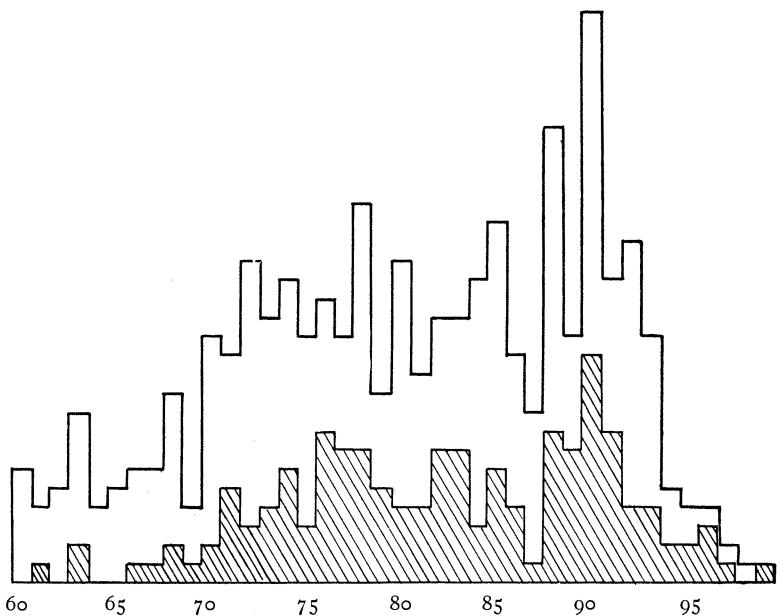


CHART IB.—Standings (or marks) of 445 pupils in classes in arithmetic, Grades 3-8 inclusive, of City I. Median for total group = 81 per cent. Those in shaded columns entered high school, 146 in number, 84 above and 62 below median.

or principal might study to advantage. Detailed information in regard to the facts for a period of several years would also be of considerable general interest and value.

Some results in regard to the quality of the elimination from school in the case of two cities in the state of Wisconsin are presented below, and for the purpose of somewhat more completeness several typical classes have been followed through the state university. Such a study, if carried out with the requisite

attention to details—which, it should be added, has not been attempted here—would furnish a survey of an important aspect of an educational system from the primary school through the university. It would determine what sort of raw material goes into the finished product.

In this particular study the school's own judgment of the relative abilities of its pupils, as indicated by the marks or grades assigned them has been accepted as a basis for determining what kind of pupils remain or drop out of school. Whether the school as a selective agency recognizes a sufficiently wide range

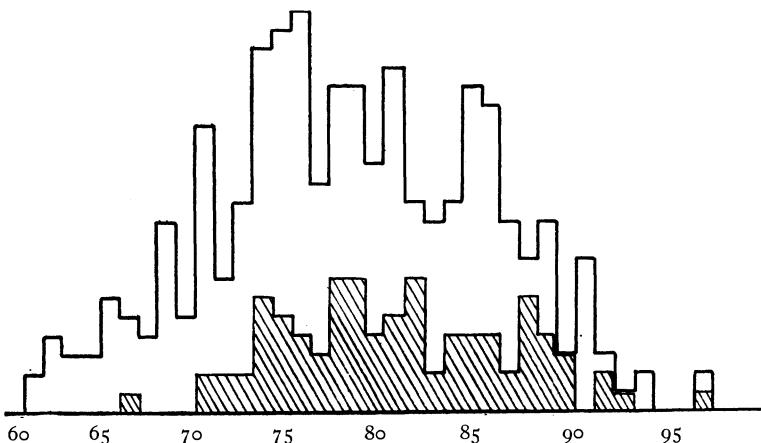


CHART IIA.—Standings (or marks) of 322 pupils in the English classes of Grades 3-8 inclusive of City II. Median for total group = 78 per cent. Those in the shaded columns entered high school, 88 in number, 56 above and 32 below median.

of abilities is, for example, a question which is not raised. Accepting the school's own standards, the problem is simply to determine in how far the best pupils are selected for further instruction.

Three groups of pupils have been studied; one group has been followed through the grades of the two cities mentioned above, and a similar group has been traced through the high schools of each city, and finally a group of about five hundred has been followed through the first two years of the state university.

## ELIMINATION IN THE GRADES

In the first case, the group chosen was the freshman class of each high school. Their standings in the last six grades of the grammar schools from which they came have been compared with the standings of their former classmates in these schools who did not go to high schools, or at least did not go to the high schools in these cities. This comparison has been made for two typical subjects of study, English and mathematics, for the reason that some form of these studies is found in all the grades. In the accompanying charts for this group (Charts I A and B

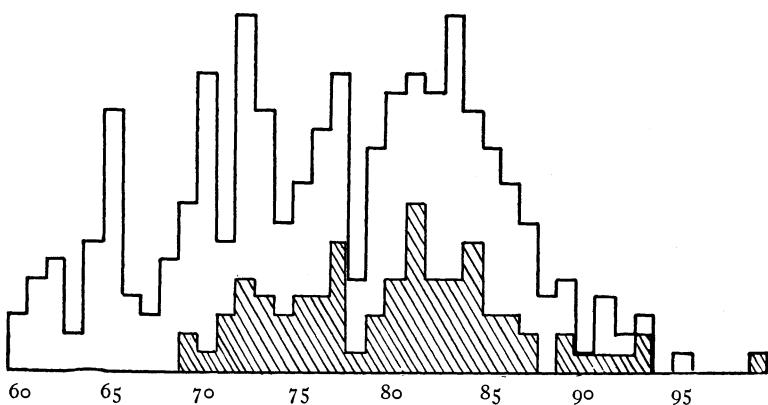


CHART IIB.—Standings (or marks) of 302 pupils in the classes in arithmetic in Grades 3-8 inclusive of City II. Median for total group = 77 per cent. Those in the shaded columns entered high school, 84 in number, 58 above and 26 below median.

and II A and B) the shaded columns show what ranks the school group maintained in the grammar school, the remaining unshaded columns show the ranks of those who did *not* go to high school. The horizontal line at the base of the columns indicates the grades assigned, etc., from 60 to 100, and the height of the corresponding column the number of pupils who attained these grades. In City I for example (see Chart I A) there are in all 486 pupils in English; of these 146 got as far as freshman year in the high school. The *median grade* of the whole group is 82, that is, approximately one half of the whole group secures 82 or a

higher grade, and the other half 82 or a lower grade. Of those who entered the high school, eighty-four had thus been in the upper halves of the English classes in the grades and sixty-two in the lower halves. In Arithmetic (see Chart I B), the median grade of the whole group is 81; eighty-four of those who reached the high school stood above this grade in grammar school, and sixty-two of them below it. About 40 per cent. (38 per cent. and 42 per cent.) of those who reached the freshman class of this high school had stood in the lower halves of their classes in English and arithmetic in the grammar school. In the case of City II (see Chart II, A and B) about one third of the freshman class of the high school had been in the lower halves of their classes in English and arithmetic in the grammar school.

As noted above, some of the pupils undoubtedly moved away to other cities and entered other high schools or attended private academies. This is an error for which no correction has been attempted in this study. Viewing the matter, however, purely from the standpoint of the efficiency of the school system under examination one third of the pupils who were caught in its meshes, so to speak, were of an inferior sort; and the opposite fact is equally true, that over a third of the pupils who slipped through were superior students.

#### ELIMINATION IN THE HIGH SCHOOL

A method similar to that employed in the study of the grades has been followed in the case of the high schools of these two cities. The accompanying charts have in this case been constructed somewhat differently in that the shaded columns indicate the ranks of those who entered, but did *not* finish the high school course. A study of the charts (see Chart III, A and B) seems to indicate that there is a marked difference in the relative influence of the two subjects under examination—namely, English and mathematics<sup>1</sup>—on the elimination; 27 per cent. of those who dropped out of one school and 28 per cent. of those who dropped out of the other school had been

<sup>1</sup> Physics was included under mathematics in the case of the high school studies.

ranked in the first halves of their classes in English, whereas 38 per cent. and 41 per cent. respectively were in the upper halves of their classes in mathematics. That is, the pupils who dropped

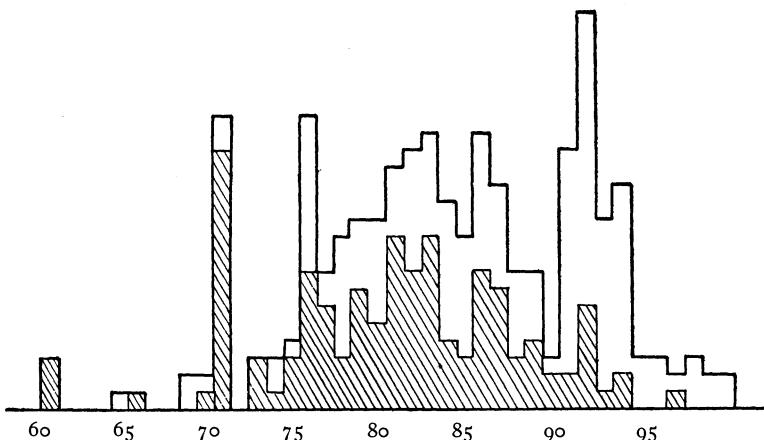


CHART IIIA.—Standings (or marks) of 285 pupils in the English classes of the high school (City I). Median of total group = 85 per cent. *Those in the shaded columns dropped out before the end of the senior year*, the total number eliminated being 129, 36 above and 93 below median.

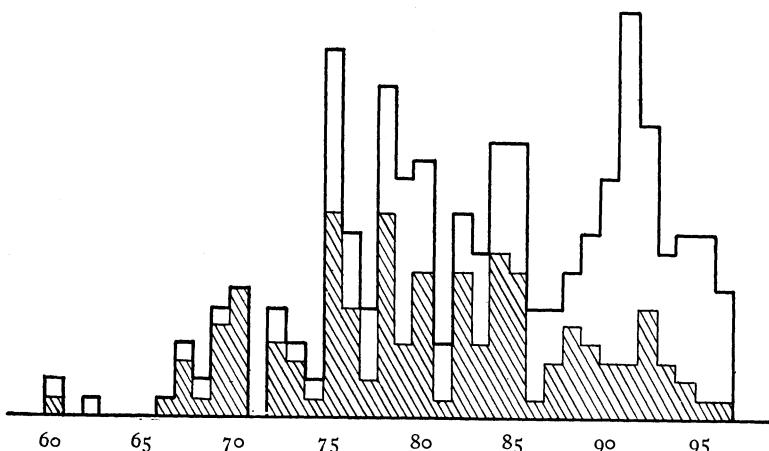


CHART IIIB.—Standing (or marks) of 287 pupils in the classes in mathematics in the high school (City I). Median of total group = 83 per cent. *Those in the shaded columns dropped out before the end of the senior year*, the total number eliminated being 129, 53 above and 76 below median.

out were on the whole better in mathematics than in English. This may be a coincidence, although it occurs in the case of these two schools situated in very different sorts of cities. Taking an average of the standings in these two subjects of study, it appears

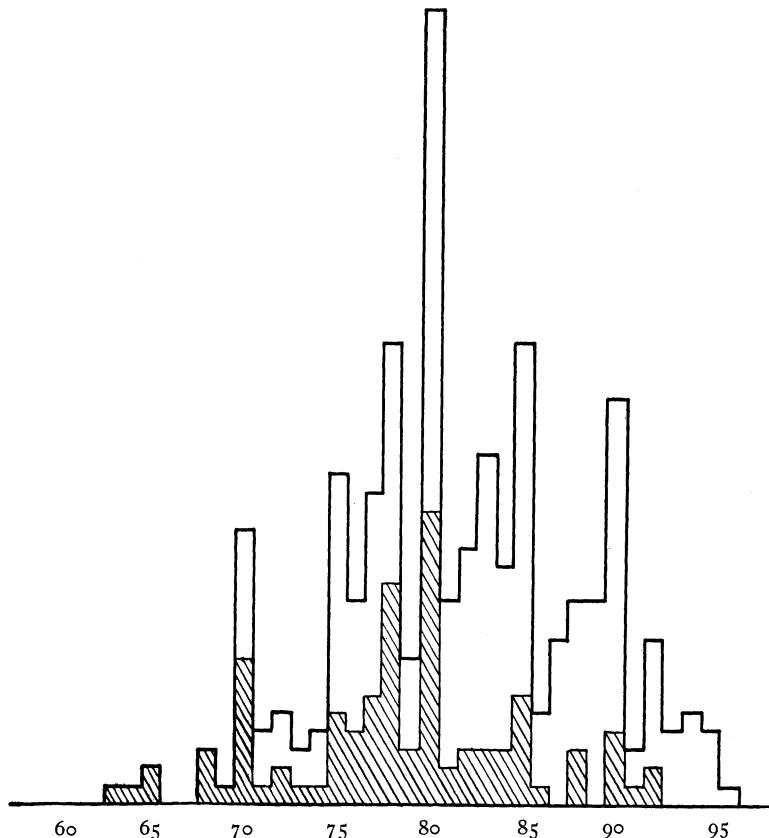


CHART IVA.—Standings (or marks) of 333 pupils in the English classes of the high school (City II). Median of group = 82 per cent. *Those in the shaded columns dropped out before the end of the senior year, the total number eliminated being 95, 26 above and 69 below median.*

that fully one third of those who dropped out during the course of the high school are students who have ranked in the upper halves of their classes while they remained in the high school. It will be recalled that in the last section it was shown that fully a

third of the members of this class had been in the lower halves of their classes in grammar school.<sup>2</sup> If now we add to this the fact that a third of the better students of the class dropped out of the high school course, it appears that those who actually finish

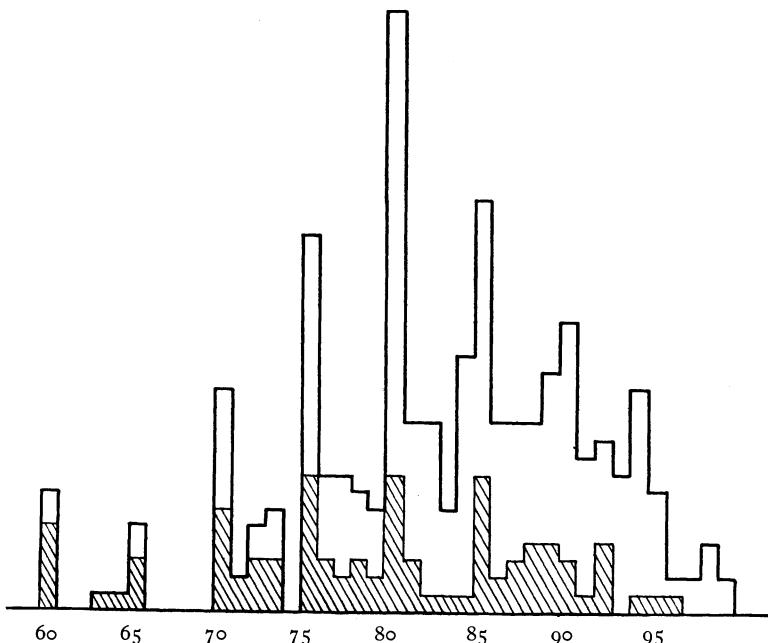


CHART IVB.—Standing (or marks) of 297 pupils in the classes in mathematics in the high school (City II). Median of total groups=83 per cent. *Those in the shaded columns dropped out before the end of senior year, the number eliminated being 88, 34 above and 54 below median.*

do not represent a very high order of selection from the pupils who originally started.

It, of course, must be held in mind that the scope of this study and the number of cases involved are not sufficient to warrant any final conclusions on this subject. It should also be remembered that the study began with third grade pupils. The

<sup>2</sup> These two groups, i.e., the third of poor students who enter high school and the third of superior students who drop out are not the same individuals, because there is a definite tendency for pupils to maintain in the high school the same relative rank which they had in the grammar school.

elimination of the earlier grades is undoubtedly very largely based on mental inability, but in the later years it is probable that ability plays a decreasingly less important part.

#### ELIMINATION FROM THE UNIVERSITY<sup>8</sup>

The group studied in the case of the university entered from eight different high schools, three of them located in the city of Milwaukee, one in Madison, and the remaining four in smaller cities of the state. There were 472 pupils in the group, and they entered the University of Wisconsin during the years 1900 to 1905 inclusive. Their standing as indicated in the accompanying chart has been based on the general averages of all the grades secured by the individual students during freshman year. Out of this group of 472, 93 or 19.7 per cent. left the university during the freshman year, and 43 or 12 per cent. during sophomore year, a total of 136, or 31.7 per cent. of elimination in the two years. In other words, about one third of the group were eliminated in the first two years of college. In this case, however, there is a distinct difference in the quality of the elimination in that only about 12 per cent. were from the upper half of the class.

In order to indicate somewhat more clearly this distribution of pupils in the class, the group has been divided into four quarters, or "quartiles," and the number and percentage of those dropped in each quartile has been indicated in the accompanying table. The first quartile indicates those who ranked in the first quarter of the freshman class on the basis of the general average of the grades secured in the various subjects. The second quartile similarly includes those who stood in the second quarter of the class. As may be seen in the accompanying table, about 50 per cent. of those eliminated were from the lowest quarter of the class, 23 per cent. and 17 per cent. respectively from the third and second quarters of the class, and less than 10 per cent. from the first quarter.

<sup>8</sup> Several paragraphs in this section have been quoted with some modifications from a recent monograph by the writer on "The Relative Standing of Pupils in the High School and in the University," *Bulletin of the University of Wisconsin*, High-School Series, No. 6.

ELIMINATIONS DURING FRESHMAN YEAR  
UNIVERSITY OF WISCONSIN

(TOTAL NUMBER IN GROUP, 472; NUMBER IN EACH QUARTILE, 118)

		Percentage of Total in Quartile	Percentage of Total Eliminations
First Quartile.....	9	7.6	9.7
Second Quartile.....	16	13.6	17.2
Third Quartile.....	21	17.8	22.6
Fourth Quartile.....	47	39.8	50.5
	93		

ELIMINATIONS DURING SOPHOMORE YEAR  
UNIVERSITY OF WISCONSIN

		Percentage of Total in Quartile	Percentage of Total Eliminations
First Quartile.....	4	4.5	9.2
Second Quartile.....	7	7.9	16.1
Third Quartile.....	10	11.2	23.1
Fourth Quartile.....	22	24.4	51.6
	43		

Similar percentages hold of the high school quartiles (based on standing in high school). Only 15 per cent. of those eliminated in freshman year were in the first quarter of their high school classes, whereas 42 per cent. of them were in the lowest quarter of the high school class. The eliminations of the sophomore year are much less dependent on high school standing, and correspond more closely with the university standing.

Rank in high school has, therefore, as is to be expected, a definite relation to the question of elimination in the university. It is evident from these results that a student entering the university from these schools with a rank or general average of 85 or above, for example, is much more likely to continue through freshman year than that one whose high school rank was below 85. In this case there were 244 (56.9 per cent.) of the group who attained this or a higher rank in high school, but 29, or 12 per cent. of them drop out during freshman year, whereas, of the remaining 228, 64 or 27.5 per cent. are eliminated.

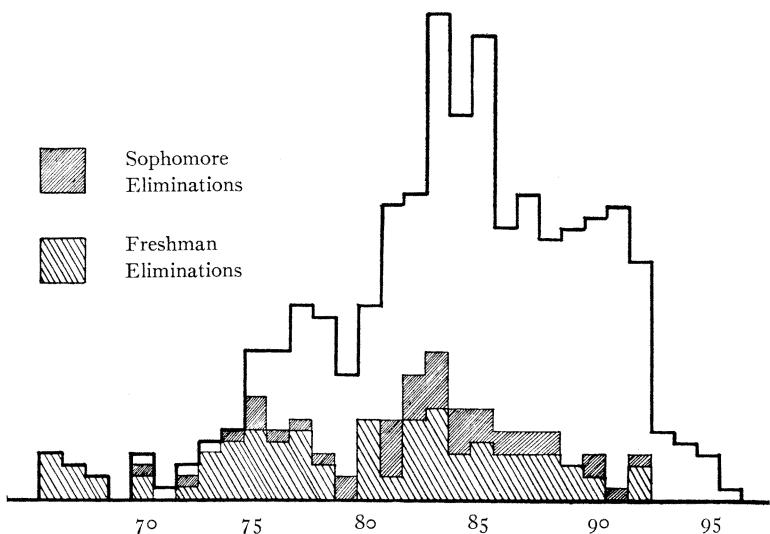


CHART V.—Standings (general averages of all grades) secured by 472 pupils during freshman year at the University of Wisconsin. Those in the shaded columns were eliminated during freshman and sophomore years. (See accompanying table of eliminations.)

The schools or cities from which the pupils come appear also to have some influence in the matter of elimination from the university. The number of cases is rather too small, however, to more than indicate a possible tendency. The largest percentage of elimination is in the case of pupils from Milwaukee, and the smallest from the group of four high schools. The facts are as follows: 40 out of 139, or 29 per cent. of those who entered from the Milwaukee high schools, did not remain in the university after freshman year; in the case of Madison, the figures are, 49 out of 238, or 20.6 per cent. and in the case of the four smaller high schools but 10 out of the 92 who entered, or 11 per cent., were eliminated.

#### CONCLUSIONS

The somewhat limited data presented above indicate that in the two cities studied fully a third of the very small number of pupils who reached high school had been inferior students in the grades. This group is further reduced by extensive elimination

in the high school, and at least one third of those who dropped out were students who ranked in the upper half of their classes in the high school.<sup>1</sup> This goes to show that the pupils prepared for entrance to the university from these schools at least represented at most an average grade of ability; they were certainly not a highly selected group.

Elimination from the university is based more on standards of scholarship than is the case in the high school or grammar school, and is relatively less influenced by other factors.

Rank in high school has a definite relation to the question of elimination in the university, only about 10 per cent. of those who stood in the first quarter of their high school classes dropped out of the university during freshman year, whereas 50 per cent. of those who were in the lowest quarter of their high school classes left the university before the completion of this year.

These conclusions are based on the school's own judgment of the efficiency of its pupils as indicated by the school marks assigned them. It is generally thought at present that the school as an institution does not recognize a sufficiently wide range of abilities. If this is so, we may be justified in concluding that with the exception of the elimination of the first few years of school, the pupils who drop out are as a group very nearly as well qualified for further study as those who remain throughout the course of study in the high school and university.

<sup>1</sup> See footnote to p. 9.